G-66

ASSESSMENT OF EPSDT PRACTICES AND COSTS

EXECUTIVE SUMMARY
of the
FINAL REPORT

March 31, 1978

Medicaid Bureau
Health Care Financing Administration
Department of Health, Education, and Welfare

This report is made pursuant to Contract No.:
SRS 500-75-0013

The amount charged to the Department of Health, Education, and Welfare for the work resulting in this report (inclusive of the amount for all previous reports) is $134,510.90.

Those with professional and managerial responsiblity for this report are:

Douglas E. Skinner, Program Executive
Daniel S. Levine, Project Director
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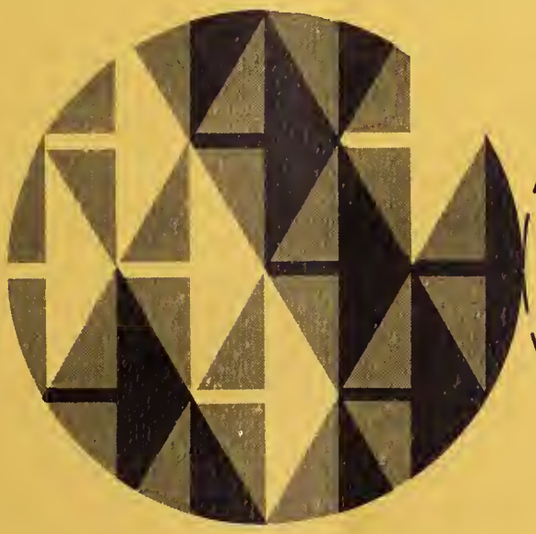

APPLIED MANAGEMENT SCIENCES

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STUDY BACKGROUND AND OBJECTIVES

In 1967, Title XIX of the Social Security Act was amended to require all states with Medicaid programs to provide Early and Periodic Screening, Diagnosis, and Treatment (EPSDT) services to Medicaid eligibles under 21 years of age. The EPSDT program was designed to detect health deficiencies at an early age and improve the health status of needy children through preventive health maintenance. The primary objective of this analysis was to assess the impact of the EPSDT program on state Medicaid budgets. Earlier parts of the larger study, of which this analysis is a part, provided for the collection and analysis of Medicaid claims data from two states for the year that EPSDT screening took place (1975). Subsequently, an initial step in this analysis was undertaken to determine if the EPSDT program caused changes in the cost and utilization of Medicaid medical services between the pre-screening year (1974) and the year of screening (1975). The Final Report completing this analysis presented data from the year following screening (1976) in conjunction with those from the two preceding years in a time-series analysis of the impacts of EPSDT on Medicaid utilization and program costs.

DESIGN AND METHODOLOGY

To control for extraneous and unwanted sources of systematic variance in the study, a non-equivalent control group design was used. The experimental and control groups were not assigned by the

experimenter but were chosen randomly from two pre-existing groups--those who were screened in March or April of 1975 and those who had not been screened by the EPSDT program as of February 1976. The sampling design controls for the main effects of history, maturation, and testing procedures. Using this design, the differences in the periods before and after screening were measured as percentage changes in utilization and cost. The effect of screening was measured by the per capita differences in utilization and cost between 1974 and 1975, 1975 and 1976, and 1974 and 1976 of those who were screened in 1975 and those who were not screened in that year. Screening visits themselves were not entered into the data; therefore, the 1975 cost and utilization figures presented in this report are exclusive of the actual screening procedure.

In brief, the study design was as follows:

	Pre-Screening Year Jan-Dec 74	Screening Period Mar-Apr 75	Screening Year Mar 75-Feb 76	Post-Screening Year Mar 76-Feb 77
(Experimental) screened	E_b	(screened)	E_x	E_a
(Control) not-screened	C_b	(not) (screened)	C_x	C_a

E_b, C_b = dependent variable (utilization and cost of Medicaid medical services) before the EPSDT screening

E_x, C_x = dependent variable the year the EPSDT screening occurred

E_a, C_a = dependent variable after the year the EPSDT screening occurred.

As costs and utilization of medical services were expected to vary with age, race, and geographical location, these variables were stratified in the design. Four age/race strata were defined as white and non-white ("other"), aged 0-6 and 7-21. Two test locations were chosen: a relatively rural southern state (State 1) and an urban-industrial northeastern state (State 2). Samples of 1600 persons were sought for each state, and roughly a ten-percent oversample was

retrieved in generating 1975 data. Oversampling was done to compensate for anticipated losses in both the experimental (screened) and the control (unscreened) groups due to inability to trace sample members after relocation or changes in eligibility. The oversampling proved sufficient to maintain a comparable sample population over the three-year study period, from 1974 to 1976. Individual identification numbers for Medicaid-eligible children were obtained during the collection of data for the screening year (1975). Paid claims histories of the eligibles identified in 1975 were subsequently retrieved and analyzed for the year prior to screening (1974) and the year following screening (1976) for both study states.

SUMMARY OF FINDINGS

The per capita utilization and expenditure data for 1974, 1975, and 1976 upon which the bulk of the analysis reported here is based are shown in Figures I and II for the five major medical service categories analyzed. It should be noted that the study findings presented below should not be used to assess the overall, long-term worth of the EPSDT program. Due to the relatively short duration of the study (i.e., three years), the long-term benefit of receiving early preventive treatment for health deficiencies cannot be accurately predicted on the basis of this study alone. Bearing in mind these limitations, the following are the major findings which resulted from the study.*

Utilization of and Expenditures for Medicaid Medical Services in State 1 (1974-1976)

A large proportion of the EPSDT eligible population in State 1 is located in rural areas. In general, from 1974 to 1976, screened persons in State 1 exhibited greater percentage increases than unscreened persons in both utilization of and expenditures for medical services. The absolute level of per capita utilization and

* Note that all 1975 data are exclusive of the actual screening procedures. The utilization and expenditure figures for the screened group in this year, therefore, are net of those for screening services.

FIGURE I: PER CAPITA MEDICAID UTILIZATION AND EXPENDITURE DATA FOR STATE 1

PER CAPITA MEDICAID UTILIZATION BY THE SAMPLE POPULATION IN STATE 1, BY MAJOR MEDICAL SERVICE CATEGORY AND YEAR OF SERVICE (ADJUSTED FOR PARTIAL YEARS OF ELIGIBILITY)+

YEAR	MEDICAL SERVICES											
	General Outpatient		Prescriptions		Inpatient-Related		Dental & Optical		Other Services		All Services	
	EPSDT	Non-EPSDT	EPSDT	Non-EPSDT	EPSDT	Non-EPSDT	EPSDT	Non-EPSDT	EPSDT	Non-EPSDT	EPSDT	Non-EPSDT
1974	1.86**	2.31**	1.76**	2.83**	0.49	0.67	1.75	2.21	0.01	0.01	5.86**	8.03**
1975	2.84	2.95	2.02**	2.63**	0.91	0.65	4.87**	3.67**	0.06	0.27	10.70	10.17
1976	2.76	2.60	1.72**	2.46**	0.61	0.53	2.45**	3.37**	0.04	0.30	7.58**	9.26**

* Difference between EPSDT and non-EPSDT sample members is statistically significant at the .05 level.

** Difference between EPSDT and non-EPSDT sample members is statistically significant at the .01 level.

+ A mix of different types of service units is involved in this summary. Outpatient services counts are for visits. The prescription counts are for individual drugs supplied on one day regardless of quantity but each pharmaceutical is counted separately. Inpatient-Related is the sum of days of hospital care and physician visits to hospitalized patients. The Dental and Optical category contains a count of optical service visits and individual dental procedures. The mix of units used in the Services category is highly complex and cannot be easily summarized.

PER CAPITA MEDICAID EXPENDITURES BY THE SAMPLE POPULATION IN STATE 1, BY MAJOR MEDICAL SERVICE CATEGORY AND YEAR OF SERVICE (ADJUSTED FOR PARTIAL YEARS OF ELIGIBILITY)

YEAR	MEDICAL SERVICES											
	General Outpatient		Prescriptions		Inpatient-Related		Dental & Optical		Other Services		All Services	
	EPSDT	Non-EPSDT	EPSDT	Non-EPSDT	EPSDT	Non-EPSDT	EPSDT	Non-EPSDT	EPSDT	Non-EPSDT	EPSDT	Non-EPSDT
1974	$25.80	$29.34	$6.31**	$10.80**	$33.62	$50.10	$19.31	$23.41	$0.25	$1.60	$85.30**	$115.25**
1975	$44.03	$39.29	$7.88*	$ 9.76*	$52.44	$54.09	$47.48**	$36.04**	$1.21	$4.35	$153.04	$143.53
1976	$44.54	$40.23	$6.98**	$10.13**	$42.67	$46.40	$21.96	$26.04	$1.21	$6.59	$117.27	$129.39

* Difference between EPSDT and non-EPSDT sample members is statistically significant at the .05 level.

** Difference between EPSDT and non-EPSDT sample members is statistically significant at the .01 level.

expenditure; however, was lower for the screened than for the unscreened group before screening took place and again became lower in 1976, a period which began approximately one year after screening. In the year of screening, 1975, both the utilization and the expenditure figures for all combined medical services were slightly higher for screened than unscreened persons. The overall cost per unit of medical service in State 1 increased from 1974 to 1976 for members of the screened sample and decreased for members of the unscreened sample. Average unit costs for medical services were higher for screened than for unscreened persons throughout the three-year study period.

The detailed findings are summarized in the paragraphs which follow below.

- Members of the State 1 EPSDT sample exhibited lower utilization rates than members of the non-EPSDT sample in 1974 in all but the Other Service Units category, where per capita utilization was on a par. Utilization in 1974 was significantly lower in a statistical sense by screened than unscreened persons in the categories of General Outpatient Services, Pharmaceutical Prescriptions, and All Services. In the remaining three service categories (Inpatient-Related, Dental and Optical, and Other Services), the difference in utilization between the two samples was not statistically significant in the pre-screening year.

- Per capita expenditures were lower in each of the five general service categories for members of the EPSDT sample than for members of the non-EPSDT sample in the pre-screening year. The difference in expenditure levels between the two samples was statistically significant (at the .01 level) in the categories of Pharmaceutical Prescriptions and Total, All Services in 1974.

- In State 1, members of the EPSDT sample exhibited a much more pronounced increase in per capita service utilization from the year prior to screening (1974) to the screening year itself (1975) than did members of the non-EPSDT sample. In State 1, members of the EPSDT sample exhibited increases in utilization across the ten medical service classifications* from the year prior to screening (1974) to the

* The ten classifications in the full report have been condensed into five categories for purposes of this summary.

screening year itself (1975). Members of the non-EPSDT sample, however, exhibited an equal number of increases and decreases in service utilization in the same time period. The percentage increases demonstrated by the screened (EPSDT) sample were greater than those by the unscreened (non-EPSDT) sample in all categories except Other Service Units.

- Percentage increases in medical expenditures from 1974 to 1975 were greater for screened than for unscreened persons in each of the service categories. Rates of change in expenditure levels largely paralleled those of utilization in both the screened and the unscreened groups, with occasional discrepancies caused by differences in the pattern of unit cost changes between the two samples.

- In the year that screening took place (1975), per capita utilization levels were higher for screened than unscreened persons for all combined medical services and in the categories of Inpatient-Related Services (not statistically significant differences) and Dental and Optical Services (a highly significant difference - at the .01 level). In the Outpatient Services category, per capita utilization was slightly lower by screened than by unscreened persons. The use of pharmaceuticals was significantly lower (at the .01 level) by screened than by unscreened individuals in 1975 (as was the case in 1974). The screened sample exhibited lower per capita utilization of Other Service Units in 1975 than the unscreened sample, but the difference was not statistically significant.

- The per capita expenditure data in 1975 exhibited the same characteristics as those for utilization, with statistically significant differences occurring in the same service categories. In the category of General Outpatient Services, although per capita utilization was slightly lower for the screened than the unscreened group, expenditures by screened persons were slightly higher. In the Inpatient-Related Services category, utilization by screened persons was higher than by unscreened persons, but per capita expenditures were lower. In none of these cases, however, were the differences between the EPSDT and the non-EPSDT samples statistically significant.

- Members of the sample of screened persons had a greater rate of decline in service use between 1975 and 1976 than did members of the non-screened sample (29 percent versus 9 percent). The State 1 screened sample had decreases in service utilization in all services with the exception of

Outpatient Clinic Visits.* In this area, continued increases in service use were probably caused by follow-up screenings conducted in 1976 by State 1. Though members of the non-EPSDT sample exhibited a general trend toward decreased medical service utilization from 1975 to 1976, increases occurred in their use of four of the ten general service categories shown in Figure I. Decreases in service use by screened persons were greater than those by unscreened persons in all but the General Outpatient Service category.

- The screened persons' Medicaid expenditures rate dropped much more sharply than that of non-screened persons between 1975 and 1976 (25 percent versus 10 percent). The expenditures change pattern by service category largely paralleled that of utilization in both groups in this time period.

- Overall utilization of Medicaid medical services in 1976, the year following screening, was significantly lower in the EPSDT group than in the non-EPSDT group. Utilization rates for outpatient services were comparable between the groups whereas the utilization rate of screened persons had been significantly lower than that of non-screened persons in 1974. As in 1974, the 1976 utilization rate for pharmaceuticals and dental and optical services were lower in the screened than in the non-screened sample. Inpatient-Related Service utilization was slightly higher by screened than unscreened persons in the post-screening year, but the difference was not statistically significant. Utilization of Other Service Units in 1976 was almost the same as in 1975 by both samples, with screened persons exhibiting slightly lower rates than unscreened persons (though not significantly lower).

- Expenditures per capita for those with screening were not significantly different from expenditures per capita for those without screening in 1976. Expenditures for pharmaceuticals were, however, significantly lower in the screened than in the unscreened sample in 1976 as they had been in 1974. The rough equality of expenditure rates per capita between the EPSDT and non-EPSDT samples occurs despite the fact that utilization is significantly lower in the screened than in the unscreened sample. This is because the cost per unit of service in the screened group in

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* This category is one of four which has been combined to form General Outpatient in Figure I. These are clinic visits, physician office visits, hospital outpatient visits, and physician emergency visits.

1976 was $15.50 while that in the comparison group was $13.96. This difference in unit costs is due to the fact that the EPSDT group places a relatively heavy emphasis in its service use pattern on both the General Outpatient and on Inpatient-Related Services which have high per unit costs and a relatively low emphasis on low unit cost services such as pharmaceuticals and dental/optical services.

- The gap between the utilization rates of screened and unscreened sample members decreased between 1974 and 1976 as a result of a sharp relative increase in EPSDT group per capita utilization between 1974 and 1975 which was only partially reversed between 1975 and 1976.

- The three outstanding differences between the changes in the utilization experience of the EPSDT and non-EPSDT samples between 1974 and 1976 were:

  .. the screened group, which had had a significantly lower outpatient utilization rate than the comparison group in 1974 had essentially the same outpatient utilization rate as the comparison group in 1976.

  .. the EPSDT group had a significantly lower dental/optical service utilization rate than the comparison group in 1976 and a significantly higher utilization rate for these services than the comparison group in 1975 while the difference in utilization rates had not been significant in 1974.

  .. the EPSDT population had a significantly lower rate of utilization of all medical services than did the non-EPSDT group in 1974 and 1976 but the utilization rate gap had diminished from 27 percent to 19 percent [1 - (EPSDT/Non-EPSDT)].

- Other interesting utilization findings from comparisons of 1976 and 1974 results include:

  .. A relatively low rate of pharmaceuticals utilization was evident in the EPSDT group in all three years but the gap diminished from 38 percent to 30 percent between 1974 and 1976.

  .. The EPSDT sample had a relatively low utilization rate for inpatient related services in 1974 and a relatively high rate in both 1975 and 1976 but none of these differences were statistically significant.

.. The EPSDT and comparison groups both used very small and roughly equal volumes of Other Services in 1974 but the utilization rate of the comparison group increased much more sharply than that of the EPSDT group between 1974 and 1976. However, in no year was there a statistically significant difference between the groups in the use of these services.

- The two most important findings with respect to comparative time trend changes in expenditures in the EPSDT and non-EPSDT groups are that:

  .. The dental/optical per capita expenditures were significantly different between the samples only in the year of screening (1975) when the EPSDT group had a higher expenditure rate than the comparison group.

  .. While expenditures per capita in the EPSDT sample were significantly lower than those in the comparison group prior to screening there was no significant difference in expenditure rates between the two groups in either the year of or the year after screening in State 1.

- Other findings of interest with respect to expenditure changes between 1974 and 1976 include the following:

  .. There was a slightly more rapid growth in outpatient pharmaceutical and other service expenditures per capita in the EPSDT group than in the comparison group in the sample population;

  .. There was a rise in the EPSDT sample's per capita inpatient expenditures and a slight decline in inpatient expenditures per capita in the non-EPSDT sample; and

  .. There was a slight increase in expenditures per unit of service for EPSDT sample members between 1974 and 1976 (+7 percent) and a slight decrease in expenditures per unit of service for the comparison group (-1 percent) which suggests that there may have been a qualitative improvement in the services received by the screened group between 1974 and 1976 which did not occur in the comparison group.

Utilization of and Expenditures for Medicaid Medical Services in State 2 (1974-1976)

State 2 has a largely urban EPSDT population. Percentage increases in both utilization and expenditures for medical services were generally higher for screened than for unscreened persons in State 2 throughout the three-year study period. In each of the three study years, however, per capita utilization and expenditure levels were lower for screened than for unscreened persons. Members of the screened sample exhibited greater percentage increases in unit costs for medical services from 1974 to 1976 than did members of the unscreened sample but the actual costs per unit of service for screened people were lower than those for unscreened people in each of the three study years.

In State 2, EPSDT appears to have caused an increase in medical service utilization and expenditures among members of the screened sample in the year of screening (1975). The utilization level attained in 1975 was maintained by the screened group in the post-screening year (1976), while expenditures continued to increase. At the end of the study period, the gap in both utilization and expenditures which existed between screened and unscreened persons was less than it had been in the year prior to screening (1974).

More detailed descriptions of findings are presented below.

- The 1974 per capita utilization data showed that the EPSDT patient selection strategy of State 2 was effective in accomplishing its purpose of concentrating screening activity among those with low health care services utilization rates. The differences between the EPSDT and the non-EPSDT samples in the pre-screening year were statistically significant in the categories of Pharmaceutical Prescriptions, Inpatient-Related Services, and All Services. The EPSDT sample, however, had a slightly higher 1974 utilization rate for one service type, Other Services, than did the non-EPSDT sample.

- In the pre-screening year (1974), the per capita expenditures were lower for the EPSDT sample than for the comparison group in each of the five service categories, with the exception of Other Services. Members of the EPSDT sample had significantly lower expenditures (in a statistical sense) than members of the non-EPSDT sample in the categories of Pharmaceutical Prescriptions, Inpatient-Related Services, and All Services.

FIGURE II: PER CAPITA MEDICAID UTILIZATION AND EXPENDITURE DATA FOR STATE 2

PER CAPITA MEDICAID UTILIZATION BY THE SAMPLE POPULATION IN STATE 1, BY MAJOR MEDICAL SERVICE CATEGORY AND YEAR OF SERVICE (ADJUSTED FOR PARTIAL YEARS OF ELIGIBILITY)+

	MEDICAL SERVICES											
YEAR	General Outpatient		Prescriptions		Inpatient-Related		Dental & Optical		Other Services		All Services	
	EPSDT	Non-EPSDT	EPSDT	Non-EPSDT	EPSDT	Non-EPSDT	EPSDT	Non-EPSDT	EPSDT	Non-EPSDT	EPSDT	Non-EPSDT
1974	3.63	4.07	3.82*	4.74*	0.52*	0.97*	2.48	2.68	0.20	0.18	10.65*	12.64*
1975	3.94	4.40	4.68	4.92	0.59**	1.12**	4.45	4.16	0.39	0.32	14.05	14.92
1976	4.57	4.71	3.93	4.57	0.71	0.83	4.54	4.98	0.29	0.27	14.04	15.36

* Difference between EPSDT and non-EPSDT sample members is statistically significant at the .05 level.

** Difference between EPSDT and non-EPSDT sample members is statistically significant at the .01 level.

+ A mix of different types of service units is involved in this summary. Outpatient Services counts are for visits. Prescription counts are for individual drugs supplied on one day regardless of quantity but each pharmaceutical is counted separately. The Inpatient-Related service unit count is the sum of days of hospital care and of physician visits to hospitalized patients. The Dental and Optical category contains a count of optical service visits and individual dental procedures. The mix of units used in the Other Services category is highly complex and cannot be readily summarized.

PER CAPITA MEDICAID UTILIZATION BY THE SAMPLE POPULATION IN STATE 1, BY MAJOR MEDICAL SERVICE CATEGORY AND YEAR OF SERVICE (ADJUSTED FOR PARTIAL YEARS OF ELIGIBILITY)+

	MEDICAL SERVICES											
YEAR	General Outpatient		Prescriptions		Inpatient-Related		Dental & Optical		Other Services		All Services	
	EPSDT	Non-EPSDT	EPSDT	Non-EPSDT	EPSDT	Non-EPSDT	EPSDT	Non-EPSDT	EPSDT	Non-EPSDT	EPSDT	Non-EPSDT
1974	$59.75	$67.69	$15.13*	$18.76*	$41.03*	$ 77.37*	$27.55	$29.51	$3.47	$3.05	$146.94**	$196.36**
1975	$72.48	$78.60	$19.66	$21.53	$64.00*	$116.94*	$36.34	$32.24	$6.59	$5.44	$198.07*	$254.75*
1976	$93.54	$96.36	$16.88	$19.84	$70.83	$ 87.71	$32.36	$36.00	$3.37	$3.10	$216.98	$243.01

* Difference between EPSDT and non-EPSDT sample members is statistically significant at the .05 level.

** Difference between EPSDT and non-EPSDT sample members is statistically significant at the .01 level.

- Members of the State 2 EPSDT sample, on the whole, had greater percentage increases in utilization of medical services from 1974 to 1975 than did members of the non-EPSDT sample. This was demonstrated in each of the general service categories, with the exception of General Outpatient Services and Inpatient-Related Services, where percentage increases were identical for both samples. Members of both samples in State 2, however, exhibited increased service utilization in each of the major medical service categories from 1974 (the year prior to screening) to 1975 (the year that screening took place).

- Changes in per capita expenditures in the two samples between 1974 and 1975 largely paralleled utilization changes. The screened sample had a more rapid increase than the non-screened sample in expenditures in all services and in each individual service category except for General Outpatient and Inpatient-Related Services. Percentage increases in unit costs for All Services in this same time period, however, were lower for the EPSDT group than for the non-EPSDT group.

- In 1975, the per capita utilization rates exhibited by both samples were very comparable in all but the Inpatient-Related Services category. In this area, screened persons used significantly fewer (at the .01 level) services than unscreened persons. Statistically significant differences between the two sample groups were not evidenced in any of the other major service categories, including all combined medical services, in 1975.

- In the year of screening (1975), the expenditure rates for EPSDT screened persons were significantly lower than for non-screened persons overall and in Inpatient-Related Services. Though per capita expenditures in the EPSDT sample remained lower than per capita expenditures in the comparison group in 1975 in Prescriptions, the statistical significance of that difference evident in 1974 was not present in 1975.

- Between 1975, the year of screening, and 1976, the post-screening year, members of the State 2 EPSDT sample exhibited no change in their utilization of all combined Medicaid medical services. Members of the unscreened sample exhibited a three percent increase in medical service utilization in the same time period. Percentage increases in utilization exhibited by screened persons from 1975 to 1976 were greater than those exhibited by unscreened persons in General Outpatient Services and Inpatient-Related Services, but they were less than those of the unscreened sample in Pharmaceutical Prescriptions, Dental and Optical Services, and Other Service Units.

- In contrast to the utilization findings, the data show that the EPSDT sample had an overall increase in per capita Medicaid medical expenditures while the comparison group had a decline in these expenditures between 1975 (the screening year) and 1976. This was due to a 10 percent inter-year increase in unit costs for all combined services experienced by the EPSDT sample as opposed to a 7 percent decrease in unit costs exhibited by the non-EPSDT sample. This divergence in unit cost of care change experience in the two samples was not due in any major sense to a more rapid rate of unit cost increase for individual types of services received in the EPSDT group than in the non-EPSDT group. The cause is, instead, to be found in the shifts in the mix of services used by the two groups and particularly in the relatively rapid increases in use of high per unit cost inpatient and general outpatient services in the EPSDT sample as compared with the non-EPSDT sample.

- The 1976 utilization data indicate that the utilization rates of both the EPSDT and the non-EPSDT groups were on a par, with no statistically significant differences evidenced in any of the five general service categories or for all services combined. Per capita utilization rates in the post-screening year were slightly lower for screened than unscreened sample members in all but the Other Services category, where utilization was essentially the same.

- In the post-screening year (1976), the per capita expenditure data followed the same pattern as the utilization data in State 2. Members of the EPSDT (experimental) group had lower per capita expenditures than members of the non-EPSDT (control) group in all but the Other Services category. Differences in expenditures by the two samples were not statistically significant in any of the five major service categories or in the category of All Services in the post-screening year.

- The principal utilization impacts of EPSDT screening in State 2 between 1974 (the prescreening year) and 1976 (the post-screening year) appear to have been:

  .. a continuing increase in the absolute and relative (by comparison with the non-screened group) utilization of General Outpatient and of Inpatient-Related Services.

  .. a more rapid increase and a sustained higher relative utilization of all services in the EPSDT sample as compared with the non-EPSDT sample.

  .. an elimination of the statistical significance of the difference between the relatively low prescription utilization of EPSDT-screened children and other children in 1975 and 1976 as compared with 1974.

- .. an elimination in 1976 of the statistical significance of differences between Inpatient-Related service use by the two study populations which existed in 1974 and 1975. The inpatient-related utilization in the EPSDT sample was, however, lower than that of the comparison sample in each year.

- .. an elimination in both 1975 and 1976 of the statistical significance of the differences in overall service utilization rates which was evident in 1974 when screened people used fewer services than non-screened people. In all three years, however, EPSDT sample members did have a lower overall utilization rate than did members of the comparison sample.

- The major change in expenditures related findings for the period 1974 to 1976 in State 2 are that:

  - .. the EPSDT sample had a continuing increase in per capita expenditures which was more rapid than that experienced by the non-EPSDT sample.

  - .. the significance of the difference between per capita expenditures in the EPSDT and non-EPSDT groups decreased between 1974 and 1975 and the difference remaining in 1976 was not statistically significant.

  - .. Inpatient-Related per capita expenditures in the EPSDT screened group were not significantly different from those of the comparison group in 1976 whereas they had been significantly lower than those of the comparison group in both 1974 and 1975.

Comparison of Findings Between State 1 and State 2 (1974-1976)

State 2, the urban-industrial northeastern state, exhibited generally higher per capita rates of utilization and expenditures throughout the study period than did State 1, the rural southern state. In both states, members of the screened sample exhibited sharp increases in medical service utilization and expenditures from 1974, the pre-screening year, to 1975, the year that screening took place. In State 1, the utilization and expenditure levels demonstrated by screened persons surpassed those of unscreened persons in 1975 but fell slightly below the unscreened figures in 1976. Members of the State 2 screened population followed a similar pattern, but the levels did not surpass those of the control (unscreened) group in the screening year (1975). In both states, the levels of utilization and

expenditures exhibited by the screened samples were greater in 1976 than in 1974, and the gap between the service utilization and expenditure levels of screened and unscreened recipients was reduced over the three-year period.

- The EPSDT sample in both States had significantly lower service utilization and expenditure rates in the pre-screening year (1974) than did the comparison samples in those states. In addition, utilization and expenditures rates were lower in both samples in the relatively rural State (1) than in the more urban State (2) in each year of the study period.

- From 1974 to 1975, increases in utilization were exhibited by screened eligibles in both states in all service categories except Outpatient Hospital Visits* in State 2. Screened eligibles in State 1 exhibited greater utilization increases in general than those in State 2. Exceptions to this pattern occurred in the Outpatient Clinic and Pharmaceutical Prescription service categories.

- Increases in service use in both States between 1974 and 1975 were generally more rapid in the EPSDT sample than in the non-EPSDT sample.

- From 1975 to 1976, the State 1 screened sample exhibited decreases in service utilization both absolutely and relative to the experience of the unscreened sample in most service categories and in all services. A service use decline did not take place in clinic visits* in the EPSDT sample either in absolute or in relative terms in this period in State 1.

- In State 2, overall service use among the EPSDT sample members was virtually unchanged between 1975 and 1976 while that of the comparison group increased slightly. The screened sample in State 2 exhibited utilization decreases in Outpatient Clinic Visits, Pharmaceutical Prescriptions, Optical Services, and Other Services and increases in the remaining service categories. The non-EPSDT sample had a similar pattern of inter-year change in utilization but increases tended to be larger and decreases smaller on a service type by service type basis in the non-EPSDT sample as compared with the EPSDT sample.

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* One of four components of the General Outpatient category of Figures I and II. The four components of this category are physician office visits, clinic visits, emergency visits, and hospital outpatient department visits.

- The net percentage service use change data for 1974 to 1976 reveal more rapid increases in overall service utilization by screened than by non-screened sample members in both States. However, in State 1, members of the screened sample did not increase their use of pharmaceuticals, inpatient hospital days,* or optical services* over the study period. In State 2, EPSDT sample members increased their use of all services except optical visits over the study period.

- A generally sharper increase in service use among those screened than among members of the comparison sample was noted for the three-year period and this resulted in a closing of the utilization gap between screened and unscreened persons in the two States. However, the closing of the utilization gap in both States was more than fully accomplished in the year of screening (1975) and this closing was partially reversed between 1975 and 1976.

- In both states, the expenditure findings largely paralleled the utilization findings. Slight differences were accounted for by different patterns of change in costs per unit of service. Percentage changes in unit costs were negligible throughout the three-year study period. In both State 1 and State 2, however, members of the EPSDT (screened) sample exhibited slightly greater increases in costs per unit of service than did members of the non-EPSDT (unscreened) sample. The increase in unit costs of care in the EPSDT group in both States was largely due to the fact that sample members increased their utilization of relatively high unit cost outpatient visits and inpatient services more rapidly than they increased their use of All Services taken together. This pattern was not evident in the non-EPSDT samples.

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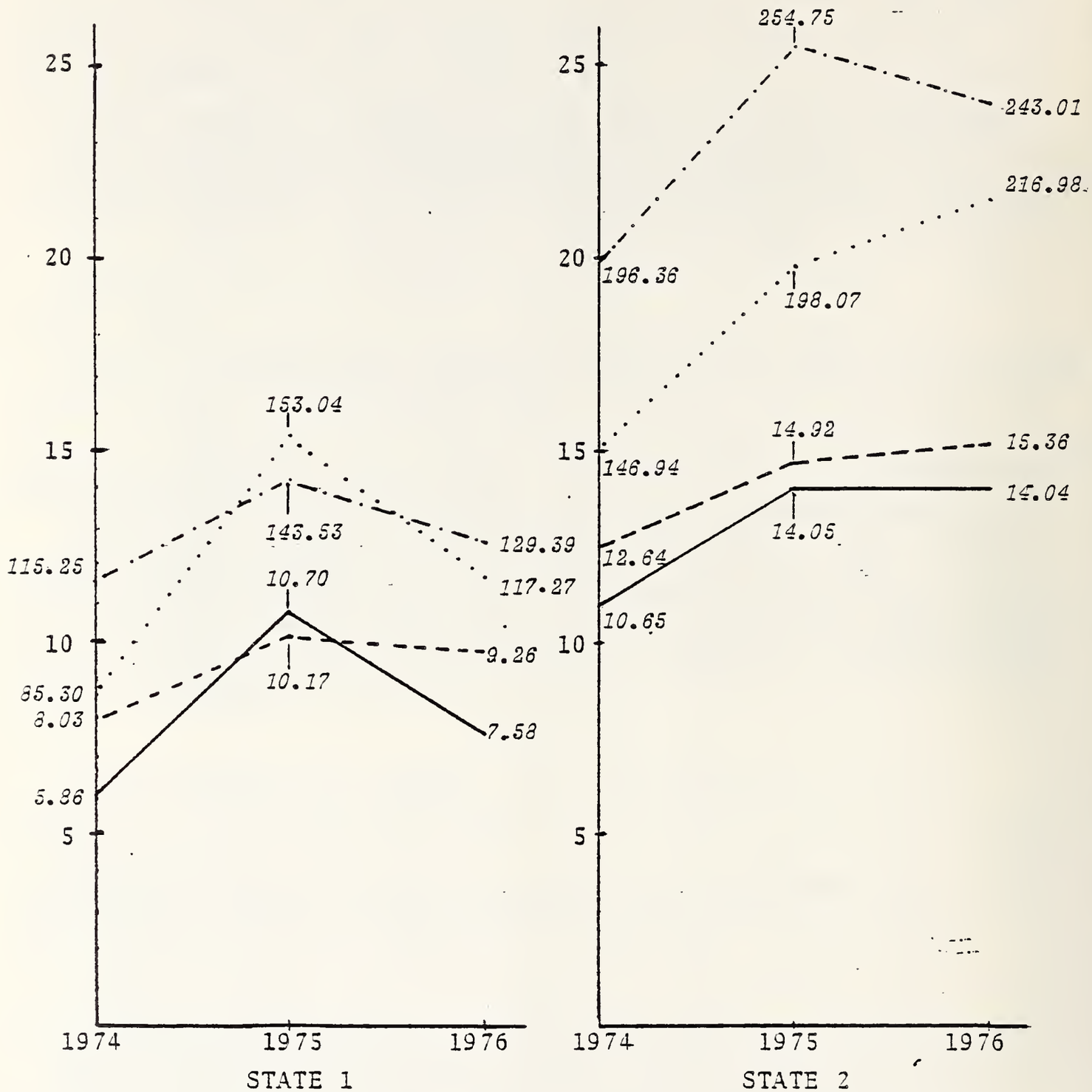
* Inpatient-Related services in Figure I includes both hospital days and inpatient physician visits. The increase in utilization in the Inpatient-Related category is solely due to increases in physician visits per day of hospital care in the screened sample in State 1. The increase in optical/dental in Figure I is solely due to increases in dental procedures.

CONCLUSION

The general trends exhibited by the sample populations in both State 1 and State 2 over the three-year study period are illustrated in Figure III. In 1974, the pre-screening year, members of the EPSDT group had lower utilization and expenditure rates than members of the non-EPSDT group in both states. In the year of screening (1975) the experimental (EPSDT) group showed a dramatic increase in utilization of Medicaid medical services in both states, and a similarly dramatic increase in expenditures in State 1. The 1975 increase in expenditures by the screened population was not as great in State 2 as in State 1. This is largely due to the fact that unit costs increased more sharply for unscreened than for screened persons in State 2 from 1974 to 1975 (see Tables 3.1 and 3.2 of the Final Report). Members of the State 1 EPSDT sample are seen to have actually surpassed those in the non-EPSDT sample in both utilization and expenditures for medical services in the screening year. In the post-screening year (1976), the one-time increase demonstrated by both states' screened populations in 1975 is seen to have tapered off very sharply, though this effect is relatively modest with respect to expenditures by the State 2 EPSDT group. This modification of the overall pattern in State 2 is caused mainly by continued increases in unit costs by the EPSDT sample between 1975 and 1976 in the face of decreasing unit costs over that period in the control (non-EPSDT) sample.

In the pre-screening year (1974), members of the EPSDT sample demonstrated lower rates of utilization than members of the non-EPSDT sample in both State 1 and State 2. This indicates that both of the study states apparently chose low medical service users for screening. In the year that screening occurred, the utilization rates (excluding the screening visits themselves) by the EPSDT and non-EPSDT sample populations in both State 1 and State 2 were very similar. In the post-screening year (1976) members of the experimental group again exhibited lower utilization rates than members of the control group, however, the difference was not as great as it had been prior to screening. In both states, from 1974 to 1976, the gap between the

FIGURE III: RELATIVE CHANGES IN MEDICAID MEDICAL SERVICE UTILIZATION AND EXPENDITURES BY EPSDT AND NON-EPSDT SAMPLE POPULATION IN STATES 1 AND 2 (1974-1976)



——— = Screened Utilization } in service units per capita
- - - - = Unscreened Utilization }
• • • • = Screened Expenditures } in tens of dollars, i.e., 8.5=$85, per capita
—•—• = Unscreened Expenditures }

EPSDT and the non-EPSDT groups narrowed more in the area of expenditures than in that of utilization. This suggests that screened persons may have developed a pattern of obtaining services from more costly providers, or of obtaining generally more intensive care after having been screened. In terms of EPSDT's goal of serving as a mechanism for remedying inadequacies in care among low users of medical services, the EPSDT program has been a substantial success at least in the short run. On the other hand, EPSDT has not been shown to produce any short run cost savings in these two States.

The apparent effect of EPSDT can be further broken down and analyzed in numerical terms. If one assumed that the percentage change in per capita utilization and expenditures among the EPSDT group would have been the same as that for the non-EPSDT group in the absence of screening, the apparent per capita effect of the screening and referral process can be estimated for the short-term period. The increase in medical service utilization exhibited by the screened sample in State 1 between 1974 and 1976 was 14 percent higher than that exhibited by the unscreened sample (29 and 15 percent, respectively). If members of the EPSDT group had experienced the same 15 percent increase in service utilization from 1974 to 1976 as the non-EPSDT group, the EPSDT group's per capita use of services would have increased from 5.86 to 6.74 services. As it was, the 1976 utilization rate for all medical services in the screened sample was 7.58 services per person (see Figure I on page iv of this summary). This suggests that the effect of EPSDT in State 1 in the short-run (the second year following screening, i.e., 1976) was to increase the utilization of medical services by almost one visit (.84) per person, or 12 percent, beyond the level which would have existed in the absence of screening. Applying the State 1 non-EPSDT sample's per capita expenditure increase between 1974 and 1976 (i.e., 12 percent) to the base year (1974) expenditures of the EPSDT group, an "expected" per capita expense of approximately $95.80 per EPSDT participant in 1976 is obtained. Since the actual EPSDT 1975 expenditure rate was $117.30 per person, this suggests that the EPSDT process "resulted" in a

short-term increase in annual medical expenses in State 1 of about $21.50 per capita; or, in percentage terms, a 22 percent increase in per capita expenses.

In the period from 1974 to 1976, the overall percentage increase in the utilization of Medicaid medical services by the State 2 screened sample was 11 percent higher than that exhibited by the unscreened sample (32 and 21 percent increases by the screened and unscreened samples, respectively). Again, if members of the EPSDT group had experienced the same 21 percent increase in service use as the non-EPSDT group, the EPSDT group's per capita utilization rate would have increased from 10.65 services in 1974 to 12.89 services in 1976. As it was, the 1976 per capita utilization rate for all medical services was 14.04 units per screened person (see Figure II on page xi). This suggests that the EPSDT process "resulted" in a short-term increase in annual medical services utilization in State 2 of about 1.15 service units per person; or, in percentage terms, a 9 percent increase in per capita utilization. Applying this approach to State 2 expenditure data, one can see that if members of the EPSDT group had experienced the same 24 percent increase in medical expenditures (from 1974 to 1976) as that demonstrated by the non-EPSDT group, per capita expenditures by the EPSDT sample would have increased from $146.94 in 1974, to $182.20 in 1976. As the 1976 per capita expenditure level for all Medicaid medical services was $216.98 for members of the screened sample, it is implied that the EPSDT procedure raised annual medical expenses in State 2 by $34.78 per person, or 19 percent, in the short-run. Care must be taken in projecting these inferences to the general case; however, these findings are noteworthy and further study on the nature and causes of these impacts of EPSDT is warranted.

To summarize, EPSDT appears to have increased annual service utilization among the screened sample by 12 percent in State 1 and by 9 percent in State 2. Annual expenditures for medical services by the EPSDT sample appear to have increased by 22 percent in State 1 and by 19 percent in State 2 as a result of the EPSDT procedure.

Nevertheless, the EPSDT samples in both states used fewer services and had lower expenses for medical care in both 1974 and 1976 (the pre- and the post-screening years) than did children who were not screened, although the gap was narrowed in 1976. This indicates that the EPSDT program brought low users into the health care system and, in the short run, raised their utilization and expenditure rates up to levels approaching those of the non-EPSDT population. However, service use and expenditures by both groups in State 1 (the rural southern state) remained sharply lower than those in State 2 (the northeastern industrial state) throughout the period of the study.

The findings also indicate that, aside from the cost of the screening service itself, the cost of providing health services to those with EPSDT screening is apparently not much different from the cost of providing routine health care services to the Medicaid population at large. Even though the gap between per capita expenditures for health care in the two pairs of samples diminished over the three year period of observation, per capita expenditures among the screened samples were somewhat lower than those of the unscreened samples in the year following the completion of the EPSDT screening service in both states (-9.4 percent and -10.7 percent in State 1 and State 2, respectively). At the end of the three-year period, the overall cost per unit of medical service was only 11 percent higher in State 1 and was 2 percent lower in State 2 for screened than for unscreened persons. Utilization at the end of the study period was 18 percent lower in State 1 and 9 percent lower in State 2 in the EPSDT screened sample than in the comparison sample. In sum, the introduction of EPSDT into the Medicaid system does not appear to stimulate an inordinate increase in per capita expenditures on behalf of the screened population relative to the costs associated with the unscreened population and EPSDT does not appear to impose a substantial medical care financial burden on Medicaid.

The findings of the study do suggest that further research is warranted on the relationship between the EPSDT process and consumer health care practices. The fact that people received medical screenings and that apparently existing, but undiagnosed, health deficiencies were identified and treated is, of course, a worthwhile finding, especially in view of the relative cost of so doing. Due to the relatively short duration of this study, however, the long-term effect of EPSDT on the health care habits of the target population cannot be characterized in a reliable and valid fashion on the basis of the above information. More indepth measures on each of the recipient groups must be acquired and analyzed, and such measures are not reported in existing secondary data files. Accordingly, the potential long-run behavioral effect of EPSDT upon consumer health care practices has yet to be determined.